Disruptive IR TLV technology spins out

RedShift Systems Inc, a pioneer in enabling low-cost, high-performance thermal imaging solutions for mass markets, has spun out as an independent company from Aegis Semiconductor Inc, based in Woburn, MA. Aegis has provided seed financing to RedShift.

RedShift's core technology is third generation thermal imaging that enables standard cameras to 'see heat' and brings thermal imaging to consumer-level, mass market applications – at a fraction the cost of existing systems.

It has developed a breakthrough product called the RedShift Thermal Light Valve, a passive optical component that shifts long-wavelength thermal infrared radiation to CMOS-visible light.

It enables manufacturers to include high-quality, long wavelength infrared imaging capability in a wide variety of products, but at a tenth the cost of existing solutions.

This price-performance not only positions RedShift to disrupt an established $2bn market for military, firefighting and industrial thermal imaging, but also opens up new markets for thermal imaging in price-sensitive markets such as automotive safety, law enforcement, and video surveillance.

RedShift can offer significant cost savings because its platform can transform virtually any standard commercial camera into a thermal camera. This allows manufacturers to build or retrofit on top of the hundreds of millions of CMOS /CCD sensors produced annually, taking advantage of the large, ongoing industry investments to improve these sensors' performance and reduce their cost.

Developed at Princeton University and further commercialised by Aegis, RedShift's core technology is mature – operating in Aegis major telecommunications platforms – and can be manufactured using standard processes in volume foundries.

Matthias Wagner, co-founder of Aegis Semiconductor, has left Aegis to lead RedShift Systems as its CEO. Wagner served as CEO of Aegis until February, when he handed off that post to Donald E. Bossi, who had previously held a number of senior management positions at JDS Uniphase. Eugene Ma, CTO and co-founder at Aegis, joins RedShift as CTO.

"We see vast new opportunities for infrared imaging in markets that previously hadn't considered it because costs were too high," Wagner said. "Now that RedShift has eliminated the cost barrier, customers are pulling us into applications where they urgently need an affordable thermal imaging solution."

Lawrence Livermore lasers

A team of laser scientists and engineers has built upon LLNL's Solid-State Heat Capacity Laser, designed to destroy mortars and missiles in short-range battlefield defense and won an R&D 100 award, one of five to be awarded to the Laboratory. The new diode-pumped pulsed laser has an output power of more than 10,000W, making it the world's most powerful diode-pumped solid-state laser. Fired in a pulsed mode, it produces a peak power of up to half a million watts.

The laser fits on a vehicle and allows land mines to be safely neutralised at up to a quarter mile away.

Also underway at the Lawrence Livermore Lab is the development of the Titan laser.

Using parts from Nova and dismantled Livermore lasers, physicists have developed a new intense-short-long pulse laser that will become one of only three pettawatt lasers in the world along with UK and Japan.